



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

mz

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/087,332

03/01/2002

Vladimir Nikitin

SJO92000065US1

3077

45216 7590 02/22/2007  
KUNZLER & ASSOCIATES  
8 EAST BROADWAY  
SUITE 600  
SALT LAKE CITY, UT 84111

EXAMINER

DAVIS, DAVID DONALD

ART UNIT

PAPER NUMBER

2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

## Application No.

10/087,332

## Applicant(s)

NIKITIN ET AL.

## Examiner

David D. Davis

## Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 8, 14, 16 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeura (US 5,805,390). Takeura shows in figures 5A-5C, for example, a magnetic head including an electrical pad 30, 31, 32 or 33 and a substrate 4 on which the magnetic head is formed. Takeura shows in figures 5A-5C an insulating alumina undercoat 16 interposed between pad 30, 31, 32 or 33 and substrate 4. Figures 5A-5C also shows material 18 selected to have a low dielectric constant interposed between pad 30,31,32 or 33 and insulating alumina undercoat 16.

Material 18, alumina, of Takeura is a low dielectric material configured to decrease the parasitic capacitance of the magnetic head. Figures 5A-5C show a stud 19 formed through the low dielectric material 18. Takeura discloses in the paragraph bridging columns 9 and 10 that the stud includes a conductive material of copper (Cu) and that the material has a thickness in a range between about 1  $\mu\text{m}$  and about 100  $\mu\text{m}$ . Low dielectric material 18 provides a platform for the electrical pad 30, 31, 32 or 33.

### *Claim Rejections - 35 USC § 103*

Art Unit: 2627

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeura (US 5,805,390) in view of Huai et al (US 5,966,800). Takeura discloses the claimed invention see the description, supra.

Takeura, however, is silent as to the low dielectric material being either hard bake photo resist or SiO<sub>2</sub>.

Huai discloses in column 8, lines 19-26 that the low dielectric material 60 & 66 can be substituted with a hard bake photo resist. Column 5, lines 53-57 Huai et al discloses that the low dielectric material includes SiO<sub>2</sub>.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to substitute the low dielectric material, such as alumina, of Takeura with either SiO<sub>2</sub> or hard bake photo resist as taught by Huai. The rationale is as follows: one of

Art Unit: 2627

ordinary skill in the art at the time the invention was made would have been motivated to substitute a low dielectric material, such as alumina, with either SiO<sub>2</sub> or hard bake photo resist, which is well within the purview of a skilled artisan and absent an unobvious result, because the materials are art recognized equivalents.

6. Claims 9-13, 15 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeura (US 5,805,390). Takeura discloses the claimed invention see the description, *supra*.

Takeura, however, is silent as to the low dielectric material having a thickness in a range of between 10  $\mu\text{m}$  and about 50  $\mu\text{m}$ ; or having a thickness of about 20  $\mu\text{m}$ ; or having a dielectric constant of less than about 9 or about 3. Takeura is additionally silent as to the magnetic head carrier a spin-valve or GMR sensor. Takeura is further silent as to an electrical contact pad having a surface area of less than about 20  $\mu\text{m}$ .

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify the thickness range or dielectric constant of the low dielectric material of Takeura. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify a thickness range or a dielectric constant, which is well within the purview of a skilled artisan and absent an unobvious result, so as to effectively optimize the insulative properties of the dielectric material.

It additionally would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the inductive head of Takeura with a spin valve or GMR sensor as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time

Art Unit: 2627

the invention was made would have been motivated to provide an inductive head with a GMR sensor or spin valve sensor, which is well within the purview of a skilled artisan and absent an unobvious result, so as to be able to read high density from an magnetic medium.

It further would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the electrical contact pad of Takeura with a surface are of less than 20  $\mu\text{m}$ . The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide a contact pad with a specific surface area to effectively optimize the electrical properties of the contact pad and decrease any unwanted interference

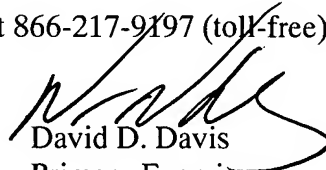
### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on 571-272-7023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David D. Davis  
Primary Examiner  
Art Unit 2627

ddd